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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/752,977	01/07/2004	Chris Harrison	AP35474-067691.0205	4797
30873	7590	07/13/2006	EXAMINER PIGGUSH, AARON C	
DORSEY & WHITNEY LLP INTELLECTUAL PROPERTY DEPARTMENT 250 PARK AVENUE NEW YORK, NY 10177			ART UNIT 2838	

DATE MAILED: 07/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/752,977	<b>Applicant(s)</b> HARRISON, CHRIS	
	<b>Examiner</b> Aaron Piggush	<b>Art Unit</b> 2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2006.  
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-42 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☒ The drawing(s) filed on 07 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 6-18, 20-32, and 34-42 are rejected under 35 U.S.C. 102(b) as being anticipated by Farley (US 5,767,659).

With respect to claims 1, 15, and 29, Farley discloses a battery charger, a process, and a storage medium configured to provide temperature-regulated charging of a battery, comprising:

a processing arrangement (col 4 ln 25-29 and no. 38 in Fig. 3), steps (Fig. 8a,b), and a software arrangement (col 15 ln 26-30 and no. 38, 39, and 300 in Fig. 3) operable to:

(a) obtain a temperature data associated with the battery (no. 33 in Fig. 3 and col 4 ln 37-38); and

(b) apply a particular amount of a charge to the battery, based on the temperature data of the battery (col 5 ln 35-50 and col 19 ln 52-55) wherein the processing arrangement is configured to maintain the battery at a predetermined threshold temperature during a time period in which the charge is applied to the battery (col 19 ln 38-60 and col 16 ln 44-56).

With respect to claims 2, 16, and 30, Farley discloses the charger, process, and storage medium wherein a processing arrangement, steps, and a software arrangement are further operable to:

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(c) obtain a voltage data associated with the battery (no. 35 in Fig. 3 and col 9 ln 36-38); and

(d) apply a charge to the battery, the charge being determined based on the voltage data of the battery (col 13 ln 33-36 and ln 58-61).

With respect to claims 3, 17, and 31, Farley discloses wherein the charge is applied to the battery until charging of the battery is substantially completed (col 14 ln 48-62 and col 13 ln 37-40).

With respect to claims 4, 18, and 32, Farley discloses wherein the charger, process, and storage medium are further operable to reading a voltage of the battery to determine if charging of battery is substantially complete (col 14 ln 48-62 and col 13 ln 32-36 and ln 58-62).

With respect to claims 6, 20, and 34, Farley discloses the charger, process, and storage medium further comprising at least one temperature sensor mounted on or in the battery, wherein the temperature sensor measures the temperature of the battery (no. 33 and 34 in Fig. 3 and col 4 ln 2-4).

With respect to claims 7, 21, and 35, Farley discloses the charger, process, and storage medium further comprising at least one temperature sensor, wherein the temperature sensor measures an ambient temperature (no. 40 in Fig. 4 and col 11 ln 19-21).

With respect to claims 8, 22, and 36, Farley discloses wherein the charge applied to the battery allows a maximum charge intensity during charging of the battery as a function of the temperature data without damaging the battery (col 13 ln 28-40).

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With respect to claims 9, 23, and 37, Farley discloses wherein the processing arrangement regulates the particular amount of the charge supplied to the battery as a function of the temperature data (col 4 ln 25-31 and Fig. 3).

With respect to claims 10, 24, and 38, Farley discloses wherein the processing arrangement regulates the particular amount of the charge to be at least one of gradually increased or gradually decreased (Fig. 8b, col 8 ln 48-58, and col 10 ln 1-40).

With respect to claims 11, 25, and 39, Farley discloses wherein the charge applied to the battery is based on one of voltage measurements and temperature measurements of the battery (col 5 ln 35-50, col 19 ln 52-55, and col 13 ln 33-36 and ln 58-61).

With respect to claims 12, 26, and 40, Farley discloses wherein the amount of the charge provided to the battery is capable of being increased based on a change in the temperature data of the battery (Fig. 8b and col 10 ln 1-40).

With respect to claims 13, 27, and 41, Farley discloses wherein the battery comprises at least one of a nickel metal hydride battery, a nickel cadmium battery, a lead acid battery, or a lithium ion battery (col 1 ln 8-11 and ln 60-65, col 2 ln 40-44, and col 12 ln 17-22).

With respect to claims 14, 28, and 42, Farley discloses the charger, process, and storage medium further operable to cool the battery using a cooling arrangement (col 3 ln 26-33 and col 8 ln 54-58). Furthermore, the reduction of the current input to the battery lowers the temperature created by that large current. A narrower interpretation of claims 14, 28, and 42 is addressed and alternatively rejected under 35 U.S.C. 103, as seen below.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5, 19, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farley (US 5,767,659) in view of Podrazhansky (US 5,889,385).

With respect to claims 5, 19, and 33, Farley discloses wherein the charger, process, and storage medium are further operable to:

(c) measure a first voltage across a terminal of the battery (first box labeled “read battery voltage store” in Fig. 8a);

(d) measure a second voltage across the terminals of the battery after step (c) (second box labeled “read battery voltage store” in Fig. 8a);

(e) determine a difference between the first voltage and the second voltage (no. 81 in Fig. 8a and col 9 ln 36-40);

However, Farley does not expressly disclose step (f) wherein procedures (c)-(e) are repeated until charging of the battery is substantially complete.

Podrazhansky discloses measuring first and second voltages of a battery (no. 305 in Fig. 3A), determining a difference between the first and second voltages (no. 305 in Fig. 3A), and repeating those steps until charging of the battery is substantially complete (no. 310 in Fig. 3A, no. 325 in Fig. 3B, pathways A, B, and C in Fig. 3A and 3B, and col 15 ln 15-29), in order to

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fully charge the battery while avoiding an overcharge, which would result in damage to the battery.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a repetition of the above mentioned steps in the charger, process, and storage medium of Farley, as did Podrazhansky, until the charging of the battery is substantially complete, so that the battery could be fully charged without being overcharged and damaged.

5. Claims 14, 28, and 42 are alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Farley (US 5,767,659) in view of Yagi (US 6,188,202).

With respect to claims 14, 28, and 42, an alternative and more narrow interpretation of these claims is addressed wherein the cooling arrangement is a device or means other than reducing the current input to the battery.

Yagi discloses a cooling fan used to reduce the temperature of the battery under charge (no. 16 in Fig. 1 and col 2 ln 60-61 and col 3 ln 20-25), in order to avoid damage to the battery from an extremely high temperature.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a fan as the cooling arrangement in the charger, process, and storage medium of Farley, as did Yagi, so that damage from an extremely high temperature could be avoided.

### ***Response to Arguments***

6. Applicant's arguments filed April 25, 2006 have been fully considered but they are not persuasive.

With respect to claims 1, 15, and 29, applicant argues that Farley fails to teach, suggest, or disclose the battery charger/method/medium in which the battery is maintained at a

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predetermined threshold temperature during a time period in which the charge is applied to the battery.

Examiner respectfully disagrees for the following reasons: As noted above, col 19 ln 38-60 relates to the maintenance of the temperature of the battery because charge shunting is provided when the battery has exceeded a threshold temperature, and it is well known that the temperature of the battery will stop increasing (and start decreasing) when the charging current is lowered for trickle charging (or stopped completely). Therefore, Farley does reasonably meet the requirements of this claim, and further battery charging and temperature maintenance are addressed in Fig. 8b and col 10 ln 1-40.

With respect to claims 9, 23, 37, applicant argues that Farley does not mention, teach, suggest, or disclose that the amount of charge provided to the battery is regulated as a function of any temperature data.

Examiner respectfully disagrees for the following reasons: As mentioned in col 4 ln 30-31 and Fig. 3, Farley discloses wherein overcharge protection and charge metering is provided by use of the circuit in Fig. 3, which includes a temperature sensor and a temperature input from that sensor to the microcontroller of that circuit. That information is used to change to trickle charging to stop charging completely when a threshold temperature is reached, as further noted in Fig. 8b and col 10 ln 1-40.

With respect to claims 10, 24, and 38, applicant argues that no gradual increase or gradual deduction of the particular amount of the charge is taught, suggested, or disclosed by any of Farley, Podrazhansky, and Yagi. This amendment required new grounds of rejection, and therefore, the action remains final.



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Examiner respectfully disagrees for the following reasons: As noted in Fig. 8b, col 8 ln 41-58, col 10 ln 1-40, Farley discloses an change in the particular amount of charge which can be reasonably interpreted as gradual. Gradual is interpreted as proceeding slowly, in which case the context of the use of gradual has to be taken into account. Concerning charging of battery cells, extremely short intervals (along the lines of micro- or milliseconds) are used, and therefore, Farley meets the term gradual.

With respect to claims 12, 26, and 40, applicant argues that an increase of the particular amount of the charge is not taught, suggested, or disclosed by any of Farley, Podrazhansky, and Yagi. This amendment also required new grounds of rejection, and therefore, the action remains final.

Examiner respectfully disagrees for the following reasons: As noted in Fig. 8b and col 10 ln 1-40, when the battery temperature is in an acceptable range and the battery is not yet fully charged, the battery can be set to a fast charging current (which would be considered an increase to when the battery was not being charged at all or was previously in a state of discharge). Additionally, it is well known that a battery cell at a higher temperature can receive a charge at a higher rate (while avoiding damage) than a cell at a lower temperature. Therefore, it is safe and capable of receiving a higher amount of charge when it is at a higher temperature (up to a certain point or threshold, wherein after that point, damage can occur).

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

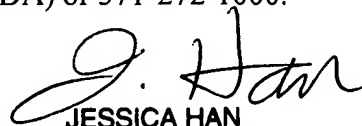
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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron Piggush whose telephone number is 571-272-5978. The examiner can normally be reached on Monday-Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on 571-272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



JESSICA HAN  
PRIMARY EXAMINER